

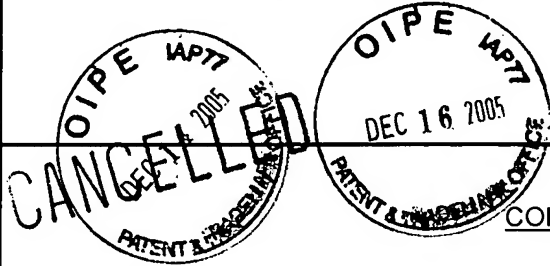
TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.
GRLK-0078

In Re Application Of: David W. Bartley, et al.

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/629,888	July 29, 2003	Taylor V. Oh	27268	1625	5567

Invention: PROCESS FOR PRODUCING TETRABROMOBENZOATE ESTERS



COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on

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- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
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Thomas A. Ladd
Signature

Dated: December 14, 2005

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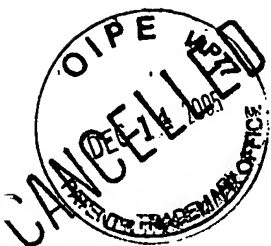
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Loretta L. Allemenos

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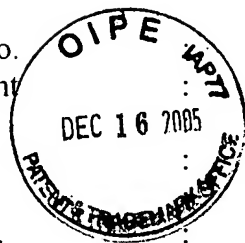
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/629,888 Confirmation No. 5567
Applicant : David W. Bartley, et al.
Filed : July 29, 2003
Title : PROCESS FOR PRODUCING TETRABROMOBENZOATE
ESTERS
TC/A.U. : 1625
Examiner : Taylor V. Oh
Docket No. : GRLK-0078
Customer No. : 27268



Board of Patent Appeals and Interferences
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

BRIEF ON APPEAL

Applicant submits its Appeal Brief in its appeal of its exparte patent application referenced above.

I. Real Party in Interest

Great Lakes Chemical Corp. W. Lafayette, Indiana which is wholly owned by Chemtura Corporation, Middlebury, Connecticut.

II. Related Appeals and Interferences

None.

III. Status of Claims

Claims 1 – 15, 17 – 32, and 34 – 35 are pending.

The Advisory Action references claims 1 – 35. However, claims 16 and 33 were canceled by applicants' response filed August 3, 2005.

CERTIFICATE OF MAILING
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12/14/05

By: Loretta L. Allemenos
Loretta L. Allemenos

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The Patent Office record is not clear as to the status of the claims: the Advisory Action states claim 1, 15, 19, 32, and 34 are rejected pursuant to 35 USC §112, second paragraph. the Final Rejection states claims 1-15, 19 – 32, and 34 – 35 are rejected as indefinite because the claims admit other components in addition to tetrabromobenzoate ester. There is no acknowledgment in the Advisory Action that claims 2 – 14, 20 – 21 or 35 were allowed.

Claims 1 – 15, 17 – 32, and 34 – 35 stand finally rejected pursuant to 35 USC §103(a) pursuant to U.S. 5,637,757 in view of U.S. 4,375,551.

A rejection of claims 16 – 18 and 33 – 35 as anticipated pursuant to 35 USC §102 (b) by U.S. 5,637,757 was withdrawn in the Final Office Action

A rejection of claims 19 – 32 as anticipated pursuant to 35 USC §102 (b) by U.S. 5,637,757 was withdrawn by the Advisory Action.

No claims presently stand rejected as anticipated pursuant to 35 USC §102 (b).

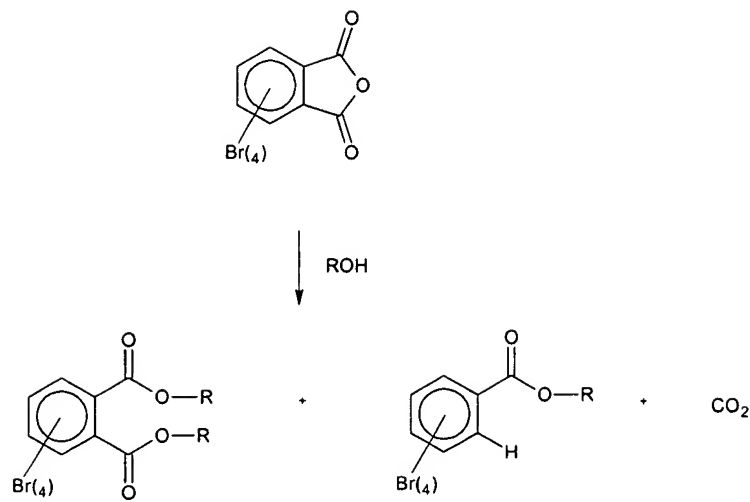
IV. Status of Amendments

Claims 7 and 27 were amended after the Final Office Action. The amendments were acknowledged and entered in the Advisory Opinion.

V. Summary of Claimed Subject Matter

The following summary of the claimed subject matter is provided as required by 37 CFR §41.37(c)(v) as an explanation to place the invention in context for the Board. While this explanation is believed to be accurate, applicant does not offer this 'Summary of Claimed Subject Matter' as a substitute for the description and claims of the application.

The claims at issue relate to the preparation of benzoate esters from phthalate and alcohol starting materials. A schematic of the reaction is shown:



The claimed invention addresses a method of increasing the yield of the preferred benzoate ester over the competing phthalate diester.

VI. Grounds of Rejection to be Reviewed on Appeal

1. Claims 1 - 15, 19 - 32 and 34 stand rejected pursuant to 35 USC §112, second paragraph, as vague and indefinite, for use of the term "tetrabromobenzoate ester containing product".¹
2. Claims 1 – 15, 17 – 32, and 34 – 35 stand rejected pursuant to 35 USC §103 (b) as obvious over U.S. 5,637,757 in view of U.S. 4,375,551.
3. So far as applicant can determine, the foregoing represents all pending claims and all grounds of rejection.

¹ See discussion under VII 1. (a) Argument. As previously noted, the record is not clear as to which claims stand rejected.

VII. Argument

1. Concerning 35 USC §112, second paragraph, rejection

(a) Lack of Clarity Regarding Claims Rejected

The record is not clear regarding the claims rejected pursuant to 35 USC §112, second paragraph.

The Advisory Action states claims 1, 15, 19, 32, and 34 are rejected pursuant to 35 USC §112, second paragraph².

The Final Rejection states claims 1-15, 19 – 32, and 34 – 35 are rejected as indefinite because the claims admit other components in addition to tetrabromobenzoate ester.³ There is no acknowledgment in the Advisory Action that claims 2 – 14, 20 – 21 or 35 were allowed. It would seem that claims that depend from purportedly indefinite independent claims would as well be indefinite and therefore rejected claims, but as much is not clear from the Advisory Opinion. Applicant requests clarification from the Patent Office on this point. Applicant appeals all claims rejected pursuant to 35 USC §112, second paragraph, believed to be claims 1-15, 19 – 32, and 34 – 35.

(b) Concerning the Merits of the Rejection pursuant to 35 USC §112, second paragraph.

Regardless of the precise claims rejected, the basis of the rejection is pursuant to 35 USC §112, second paragraph

as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

² Advisory Action p. 2.

³ Final Rejection pp. 2 – 3.

In claims 1, 15, 19, 32, and 34, the term 'tetrabromobenzoate ester-containing product' is recited. The expression is vague and indefinite because the phrase "tetrabromobenzoate ester-containing product" would mean that there are other components present in the product besides the tetrabromobenzoate ester; there is uncertainty as to what the other compounds are present in the product.

Final Office Action, pages 2 – 3.

Applicant declined the opportunity to amend the alleged offending claims in Applicants' response dated August 3, 2005.

The Final Rejection pursuant to 35 USC §112, second paragraph plows ground not previously cultivated in the MPEP. The MPEP instructs that an indefiniteness rejection made by inclusion of MPEP paragraph 7.34.01 should be followed by one of paragraphs 7.34.02 – 7.34.06. The Final Rejection does not add any of such paragraphs. Appropriately so, as the form paragraphs are not applicable. The Final Office Action is therefore left to explain the rejection. The rejection is elaborated by stating that the claim language admits other components in addition to "tetrabromobenzoate ester; there is uncertainty as to what other compounds are present in the product."

The claims are 'open-ended claims' using the verb 'comprising'. It has been the law since at least *Ex parte Davis* 80 USPQ 448, (POBA), 1949) that claims of an 'open' nature, those using the verb 'comprising' "leav[e] the claim open for inclusion of unspecified ingredients". *Id.* at 450. The position of the Patent Office would require that *Davis*, and cases following *Davis* be overruled.

Since *Davis* remains the law, the position taken by the Final Office Action, and repeated by the Advisory Opinion is untenable. That there may be "other components present in the product besides the tetrabromobenzoate ester" is not a basis for a rejection under 35 USC §112, second paragraph. There is no assertion that a person of ordinary skill in the art would be

confused by the scope of the claim language. As such, the term fully satisfies the statutory mandate of 35 USC §112, second paragraph.

Moreover, "[b]readth is not indefiniteness." *In re Gardner et al.* 57 CCPA 1207, 1210, 427 F2d 786, 788, 166 USPQ 138 (1970); see also *In re Robins*, 57 CCPA 1321, 1328, 429 F2d 452, 458, 166 USPQ 552 (1970). The fact that components in addition to the tetrabromobenzoate ester may be present does not render the claim indefinite.

For the forgoing reasons stated the rejection of claims 1 – 15, 17 – 32, and 34 – 35 for indefiniteness must be reversed.

2. Concerning the rejection of claims based on 35 USC §103 (b).

Pending claims 1 – 15, 17 – 32, and 34 – 35 are directed to a method of producing from a phthalate, a benzoate ester in preference to a competing reaction producing a phthalate di-ester.

The Advisory Action states with respect to the reference 4,375,551 "it is well-known in the secondary Findley ['551] art that it is desirable to heat the reaction mixture to accelerate the reaction . . . (see Col. 3, lines 27-30). (emphasis added) Looking to the portion of the '551 reference specified in the Advisory Action, it is illustrative to read as well the preceding lines.

The first and second steps of the process can be carried out in the same or different vessels. The rate at which the semi-esterification proceeds in the first step is dependent upon the temperature of the reactants. Starting at room temperature, with no external application of heat, the reaction will require many hours for completion. It is, therefore, desirable to heat the reaction mixture to accelerate the reaction.

'551, Col. 3, lines 23 – 30

The reaction to which the definite article 'the' refers in the specified portion of '551 is "semi-esterification", the formation of the mono-ester, or half-ester. In contrast, the reaction of applicants' claims to which the specified portion of the '551 reference is applied in the Advisory Action is decarboxylation. No authority has been provided by the examination to establish that conditions for formation of the semi-ester favor decarboxylation of the semi-ester. Indeed, if it were true, then formation of the phthalate half-ester as taught and claimed in '551 could be

expected to lead to a preponderance of the benzoate ester not the phthalate diester as taught and claimed by '551!

Applicants teach and claim "maintaining the at least one reactor at the temperature that favors decarboxylation over esterification". "Decarboxylation" is different than "semi-esterification" relied upon in the Final Office Action and the Advisory Opinion.

Next the Advisory Action substitutes what is urged to be 'well established' where prior art is required:

Moreover, regarding to the process [sic] involved from the half-ester to the full-ester, it is well established that batch and continuous processes are not patentably distinct"

Advisory Opinion, p. 5

Applicants' claims do not include formation of a diester (a/k/a full-ester). Applicants claim formation of a benzoate ester. While some diester may result from a competing reaction, diester is permitted in the claim by the 'comprising' verb in the claim to a method of preparation of the benzoate ester.

Contrary to the assertion in the Advisory Opinion that "applicants' argument is irrelevant to the issues of the currently claimed invention"⁴, applicants urge that a reference directed to preparation of the diester is not relevant to claims directed to maximization of benzoate ester (a molecule comprising a single ester moiety).

Further, the Final Office Action charges applicants' claims are not "patentably distinct" from the prior art. Notwithstanding the loose use of language by the Board in *Dilnot*, quoted below, 'patent distinctness' is a term of art relevant to restriction practice and the doctrine of double patenting. For purposes of examination, 'distinct' is defined at MPEP 802.01. Distinctness, so far as applicant can determine, is not related to prior art rejections for obviousness pursuant to 35 USC §103(a).

⁴ Advisory Opinion of September 20, 2005, p. 5.

The Final Office Action cites "In re Dinot, 319 F.2d 188, 138 USPQ 248 (C.C.P.A. 1963)" [sic, *Dilnot*, 319 F.2d 188] to support the position that "it is well established that batch and continuous processes are not patentably distinct."⁵ *Dilnot* does not support this assertion.

Claim 22 of *Dilnot* application was the subject of the language relied upon. Claim 22 included a disputed claim element of "generating a stable air foam, continuously introducing said foam into said slurry [of ready-mix concrete]". The 'continuously introducing' step was argued by *Dilnot* to distinguish over the prior art. The Board of Patent Appeals held:

[W]e find no patentable distinction over the Jahjah mode of delivering a measured volume of foam into a concrete mixer containing a slurry of cementitious material and distributing the foam into the mix. Quite apparently, the foam is not introduced all at once into the mixture but must be gradually and hence, continuously, introduced into the mixture until all of the foam has been incorporated.

319 F.2d at 194, 50 C.C.P.A. at 1453

Thus, the Board found the claim obvious in view of prior art, not because, as the instant Final Office Action would lead the reader to believe: "it is well established that batch and continuous processes are not patentably distinct".

To be complete, the *Dilnot* decision by the Board as quoted by the Court of Claims and Patent Appeals further states:

It is, however, well within the expected skill of the technician to operate a process continuously. In re Lincoln, 126 F.2d 477, 29 CCPA 942; 142 C.D. 386; 541 O.G. 668; Dow Chemical Co. v Coe, 142 C.D. 128; 545 O.G. 905; 132 F.2d 577; In re Korpi et al., 16 F.2d 564; 34 CCPA 956; 1947 C.D. 290; 602 O.G. 672.

However, this language is dicta in both the decision of the Board, and the CCPA, as it is not the basis of the decision. Moreover, turning to the three cases relied upon by the Board to support this dicta: all were decided prior to the Patent Act of 1952 added what is now §103 (a) to Title 35 USC requiring consideration of 'the invention as a whole'. Furthermore, the Court of

⁵ Final Office Action, June 27, 2005, p. 5.

Appeals for the Federal Circuit has not cited *Dilnot*, *Lincoln*, *Dow*, or *Korpi* in a reported decision. Thus, *Dilnot* is not a substitute for a teaching or suggestion in the prior art.

A prior art reference applied to support an obviousness rejection must be considered "as a whole" 35 U.S.C. § 103 (a); *In re Lee* 227 F.3d 1338, 61 USPQ2d, 1430 (Fed.Cir., 2002). The entire context of the '551 reference includes Col. 3, lines 24-35. These lines describe the "first step reaction" (line 34) which is preparation of an allylic half-ester. Col. 1, lines 62-68. Decarboxylation is not involved in the lines specifically referenced by the Final Office Action. Col. 3, lines 27 – 30. The specifically referenced language describes "[t]his first step reaction", to wit: semi-esterification. It is to be noted that the second step reaction of the '551 reference also does not involve decarboxylation, but involves esterification of the second carboxylate on the phthalate starting material to form the diester.

Since the '551 reference does not, so far as applicants can determine, address decarboxylation according to applicants' claims, the '551 reference is not relevant prior art. Moreover, the reference in the Final Office action to "pre-heat the reaction mixture to the favorable decarboxylation temperature" finds no basis of support in the '551 reference because the '551 seeks formation of the diester. Indeed, the comment misrepresents the teachings of the '551 reference.

The examination points to the conditions in the '551 reference for semi-esterification, then draws a conclusion from that reaction to decarboxylation. There is no teaching or suggestion identified that the reactions favor similar conditions.

The Advisory Action further states:

. . . Hill et al [US 5,637,757] does disclose a general teaching of the reaction temperature regarding both esterification of the anhydride and decarboxylation (see Col. 1, lines 46-48) . . .

Advisory Action, p. 5

Applicants take exception to this statement because '757 does not so state. At Col. 1, lines 46 – 48, the '757 reference states:

The reaction proceeds through rapid esterification of the anhydride, followed by decarboxylation to yield the tetrabromobenzoate.

Contrary to the statement in the Advisory Action, '757 at Col. 1, lines 46 – 48 contains no reference whatsoever to reaction temperature, whether esterification or decarboxylation.

Next the Advisory Action states that a temperature is disclosed by reference in the '757 to Col. 4, lines 26-28.

. . . the secondary Finley ['551] has [sic, was] employed to supplement the primary Hill ['757] reference regarding the temperature at which the partial esterification takes place, whereas Hill et al ['757] does disclose a general teaching of the reaction temperature regarding both esterification of the anhydride and decarboxylation (see Col. 1, lines 46-48) when the passages of Hill et al ['757] are reviewed; for example, the alcohols with the boiling points between *160° and 230°C* may be advantageous (see Col. 4, lines 26-28) in the reaction process.

Advisory Action, p. 5 (*italics added*)

Applicants take exception to this statement also because '757 does not so state.

The purported "general teaching of the reaction temperature regarding both esterification of the anhydride and decarboxylation" in '757 at Col. 1, lines 43 – 48 reads:

In particular, a one-pot method is disclosed wherein tetrabromobenzoates are prepared by reacting tetrabromophthalic anhydride with the appropriate alcohol in the presence of a decarboxylation catalyst. The reaction proceeds through rapid esterification of the anhydride, followed by decarboxylation to yield the tetrabromobenzoate.

'757 at Col. 1, lines 43 – 48

There is no reference to temperature in '757 at Col. 1, lines 43 – 48.

And at Col. 4, lines 25 – 28 the '757 reference states:

Alternatively, alcohols with boiling points below 160° C can be used in combination with a high boiling solvent. In particular alcohols with boiling points between about 100° C and 160° C may advantageously be used in that manner.

5,637,757, Col. 4, lines 25 – 28

Looking only to the temperature values, the referenced passage refers to temperatures from 100 to 160°C. Yet, the Advisory Action relies on this language to support an assertion related to a temperature range from 160° to 230°C. The assertion of the Advisory Action first misrepresents the referenced text, then would apply the same against applicants' claims.

Further addressing the Advisory Action, it is asserted that the disclosure of recycling of cooled solution in '551 is equivalent to the claim elements of claims 1 – 15, 17 – 32 and 34 - 35 of

feeding the tetrabromophthalate half-ester intermediate mixture and a catalyst to at least one heated reactor having a temperature that favors decarboxylation over esterification; and

maintaining the at least one reactor at the temperature that favors decarboxylation over esterification to produce a tetrabromo-benzoate ester-containing product.

The instant specification explains the decarboxylation temperature [0026]. Appropriate temperatures are set forth in the specification, without being limited by this explanation, the temperatures disclosed in the specification for decarboxylation are greater than the temperatures disclosed for the half-ester reaction which range from 70 to 130 °C [0011].

The recycle of reaction solution is not addressed in the first Office Action dated January 12, 2005. Recycle of reaction solution is first mentioned in the Final Rejection, p. 5, with specific direction to '551, Col. 3, lines 55 – 57. The reference passage of the '551 reference also must be considered in a context of the entire reference. Applicants' claims are directed to adding the phthalate half-ester intermediate to a reactor containing a product mixture at a temperature that favors decarboxylation over esterification. The cited portion of the '551 reference discloses recovery of a phthalate diester from the reaction solvent. The recovery in the '551 reference is accomplished by "cooling the solution to room temperature to cause crystallization of the diester

...". Next, it is disclosed that "[t]he [cooled] solution from which the diester was separated can be recycled to the process ...". ;551, Col. 3, lines 55-57.

Taken as a whole, the '551 reference discloses recycle of a cooled solution. In contrast, applicants' claims are directed to transfer of a reaction mixture which has been heated "to a temperature that favors partial esterification" to a "heated reactor" at a still higher "temperature that favors decarboxylation over esterification"⁶ containing tetrabromo-benzoate ester.

The examination identifies no reference or portion thereof that alone, or in combination, teaches applicants' claimed invention. The specifically identified portions of the '757 reference teach re-cycled of cooled fluids rather than transfer of a heated reaction mixture to a reactor at a still higher temperature.

The comparison in the examination is of two different compounds: phthalate half-ester vs. phthalate diester, for two different reactions: diesterification vs decarboxylation.

Rejection of claims for obviousness requires that a combination of references arrive at the claimed invention. *ACS Hospital Systems, Inc. v Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984); *In re Geiger* 815 F.2d 686, 688, 2 USPQ 2d 1276, 1278 (Fed. Cir. 1987). The references of record, even when combined, do not arrive at the claimed invention. Therefore the rejection of claims for obviousness must be reversed.

The analysis in the examination finds no suggestion or motivation to apply reaction conditions from an esterification reaction to a decarboxylation reaction. Rather, the analysis reconstructs applicants' claims using the claims themselves as a guide. Only by picking and choosing components (and misrepresenting the content of the same) from the applied references does the instant examination arrive at the urged rejection of claims 1 - 15, 17 - 32, and 34 - 35.

⁶ See the specification paragraph [0007].

VIII Claims Appendix

1. (Original) A method for preparing tetrabromobenzoate ester from tetrabromophthalic anhydride comprising the steps of:
 - combining the tetrabromophthalic anhydride and an alcohol in at least one reaction vessel to form a first reaction mixture;
 - heating the first reaction mixture to a temperature that favors partial esterification over complete esterification to form a tetrabromophthalate half-ester intermediate mixture;
 - feeding the tetrabromophthalate half-ester intermediate mixture and a catalyst to at least one heated reactor having a temperature that favors decarboxylation over esterification; and
 - maintaining the at least one reactor at the temperature that favors decarboxylation over esterification to produce a tetrabromobenzoate ester-containing product.
2. (Original) The method of claim 1 wherein the temperature that favors partial esterification over complete esterification is greater than about 70°C.
3. (Original) The method of claim 2 wherein the temperature that favors partial esterification over complete esterification is between about 90°C and about 130°C.
4. (Original) The method of claim 1 wherein the temperature that favors decarboxylation over esterification is above about 190°C.
5. (Original) The method of claim 4 wherein the temperature that favors decarboxylation over esterification is between about 190°C and about 205°C.
6. (Original) The method of claim 1 wherein the alcohol has a boiling point between about 100°C and about 230°C.

7. (Currently Amended) The method of claim 1 wherein the alcohol has the ~~general~~ formula ROH, and wherein R is an organic group having up to about 30 carbon atoms.

8. (Original) The method of claim 1 wherein said step of combining the tetrabromophthalic anhydride and an alcohol occurs in the presence of an inert solvent.

9. (Original) The method of claim 8 wherein the inert solvent is an ether having a boiling point between about 160°C and 230°C.

10. (Original) The method of claim 1 wherein the catalyst is a compound selected from the group consisting of carbonates, alkali bicarbonates, alkalis, and mixtures thereof.

11. (Previously Amended) The method of claim 1 wherein at least 85% of the tetrabromobenzoate ester-containing product consists of tetrabromobenzoate ester.

12. (Original) The method of claim 1 wherein the at least one reactor contains tetrabromobenzoate ester when feeding the tetrabromophthalate half-ester intermediate mixture to at least one heated reactor.

13. (Original) The method of claim 1 wherein the at least one reactor includes a plurality of heated reactors connected to one another in series.

14. (Original) The method of claim 13 wherein the first of the plurality of heated reactors contains tetrabromobenzoate ester when the tetrabromophthalate half-ester intermediate mixture is fed to at least one heated reactor.

15. (Original) The method of claim 1 wherein said step of feeding the tetrabromophthalate half-ester intermediate mixture is continuous such that the half-ester

intermediate mixture is continuously fed to the at least one reactor, while the tetrabromobenzoate ester-containing product is continuously removed from the at least one reactor.

16. (Cancelled).

17. (Previously Amended) A method for preparing a flame retarded polymer resin comprising the steps of:

combining the tetrabromophthalic anhydride and an alcohol in at least one reaction vessel to form a first reaction mixture;

heating the first reaction mixture to a temperature that favors partial esterification over complete esterification to form a tetrabromophthalate half-ester intermediate mixture;

feeding the tetrabromophthalate half-ester intermediate mixture and a catalyst to at least one heated reactor having a temperature that favors decarboxylation over esterification;

maintaining the at least one reactor at the temperature that favors decarboxylation over esterification to produce tetrabromobenzoate ester;

preparing a polymer mixture; and

adding the tetrabromobenzoate ester to the polymer mixture.

18. (Previously Amended) The method of claim 17 wherein the polymer mixture comprises polyvinyl chloride, polyurethane, or mixture thereof.

19. (Original) A method for the preparation of tetrabromobenzoate esters comprising the steps of:

feeding either tetrabromophthalic anhydride, tetrabromophthalic diacid, or mixture thereof, and an alcohol to at least one reactor wherein the first of the at least one reactor contains a product mixture, the product mixture comprising tetrabromobenzoate

ester, the at least one reactor having a temperature that favors decarboxylation over esterification; and

maintaining the at least one reactor at the temperature that favors decarboxylation over esterification to produce a tetrabromobenzoate ester-containing product.

20. (Original) The method of claim 19 wherein said product mixture includes a decarboxylation catalyst.

21. (Original) The method of claim 20 wherein the decarboxylation catalyst is a compound selected from the group consisting of carbonates, alkali bicarbonates, alkalis, and mixtures thereof.

22. (Original) The method of claim 19 said step of feeding either tetrabromophthalic anhydride, tetrabromophthalic diacid, or mixture thereof, and an alcohol to at least one reactor further includes feeding a decarboxylation catalyst to the at least one reactor.

23. (Original) The method of claim 22 wherein the catalyst is a compound selected from the group consisting of carbonates, alkali bicarbonates, alkalis, and mixtures thereof.

24. (Original) The method of claim 19 wherein the temperature that favors decarboxylation over esterification is above about 190°C.

25. (Original) The method of claim 24 wherein the temperature that favors decarboxylation over esterification is between about 190°C and about 205°C.

26. (Original) The method of claim 19 wherein the alcohol has a boiling point between about 100°C and about 230°C.

27. (Currently Amended) The method of claim 19 wherein the alcohol has the ~~general~~ formula ROH, and wherein R is an organic group having up to about 30 carbon atoms.
28. (Original) The method of claim 19 further comprising the step of adding an inert solvent to the at least one reactor, the inert solvent having a boiling point above about 160°C.
29. (Original) The method of claim 28 wherein the inert solvent is an ether.
30. (Original) The method of claim 19 wherein the at least one reactor includes a plurality of reactors connected in series to one another.
31. (Original) The method of claim 19 further comprising the step of combining the either tetrabromophthalic anhydride, tetrabromophthalic diacid, or mixture thereof, and the alcohol to form a first reaction mixture prior to said step of feeding the tetrabromophthalic anhydride, tetrabromophthalic diacid, or mixture thereof, and the alcohol.
32. (Original) The method of claim 19 wherein said step of feeding the tetrabromophthalic anhydride, tetrabromophthalic diacid, or mixture thereof, and the alcohol to at least one reactor is continuous such that either tetrabromophthalic anhydride, tetrabromophthalic diacid, or mixture thereof, and an alcohol are continuously fed to the at least one reactor, while the tetrabromobenzoate ester-containing product is continuously removed from the at least one reactor.
33. (Cancelled).
34. (Previously Amended) A method for preparing a flame retarded polymer resin comprising the steps of:
forming a tetrabromobenzoate ester-containing product using the method of claim 19;

preparing a polymer mixture; and
adding the tetrabromobenzoate ester-containing product to the polymer mixture.

35. (Previously Amended) The method of claim 34 wherein the polymer mixture comprises polyvinyl chloride-polyurethane, or mixture thereof.

IX. Evidence Appendix

none

X. Related Proceedings Appendix

none

Respectfully Submitted,

Date: December 14, 2005

By:



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